

**The Structure of the γ -Glutamyl Peptide 4 Isolated from Onion (*Allium cepa*)
 γ -L-Glutamyl-S-(1-propenyl)-cysteinesulphoxide**

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In an earlier paper¹ it was mentioned that among the nine γ -glutamyl peptides isolated as pure compounds from onion, the structure of the peptide 4 could not be established because the cysteine derivative bound to the γ -carboxyl group of L-glutamic acid was not stable even on mild acid hydrolysis. After Virtanen and Spärré² had isolated the precursor of the lachrymatory factor from onion and tentatively characterized it as S-(1-propenyl)-cysteinesulphoxide, which is unstable on acid hydrolysis, we hydrolyzed the peptide in question enzymatically. Because onion does not contain the enzyme needed for the hydrolysis, we used a preparation from calf kidney and succeeded to hydrolyze the peptide with it. When an enzyme preparation from onion was added to the hydrolyzed peptide solution, the lachrymatory factor was formed. On the paper chromatogram the amino acid migrates like the precursor of the lachrymatory factor isolated from onion. These results suggest that the amino acid is S-(1-propenyl)-cysteinesulphoxide, and the γ -glutamyl peptide 4 accordingly γ -L-glutamyl-S-(1-propenyl)-cysteinesulphoxide. Because other γ -glutamyl peptides hitherto isolated have contained cysteine derivatives in S-form, it is not impossible that this is also at least partly the case in peptide 4, and that the sulphur atom is oxidized to sulphoxide during the isolation process.

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References

1. Virtanen, A. I. and Matikkala, E. J. *Suomen Kemistilehti B* **34** (1961) 53.
2. Virtanen, A. I. and Spärré, C.-G. *Ibid. B* **34** (1961) 72.

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